

**OCTOBER 1994
QUARTERLY MONITORING AND
SAMPLING REPORT
505 CEDAR STREET
OAKLAND, CALIFORNIA**

Prepared For:

**STATE DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL ENGINEERING BRANCH
111 GRAND AVENUE, 14TH FLOOR
OAKLAND, CALIFORNIA 94623-0660**

**Contract Number 53U495
Task Order Number 04-192211-05**

December 12, 1994

**ENVIRONMENTAL SOLUTIONS, INC.
PETALUMA, CALIFORNIA**

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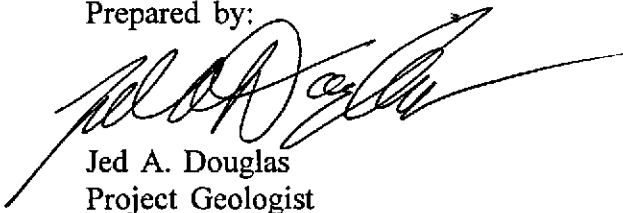
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ENVIRONMENTAL SOLUTIONS, INC.
PETALUMA, CALIFORNIA

December 12, 1994

Prepared by:


Jed A. Douglas
Project Geologist

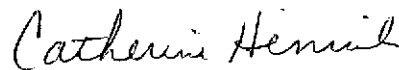

Catherine A. Henrich, C.E.G. 1586
Office Manager/Principal Hydrogeologist



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DISTRIBUTION

The contents of this report reflect the views of the author who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the California Department of Transportation or the Federal Highway administration. This report does not constitute a standard, specification, or regulation.

1.0 INTRODUCTION

1. Environmental Solutions, Inc. has prepared this Quarterly Monitoring and Sampling Report for the Caltrans site (Site), located at 505 Cedar Street in Oakland, California (Figure 1), as part of Task Order 04-192211-05 of Contract Number 53U495.
2. The purpose of the Task Order was to install and sample three ground water monitoring wells to assess if soil and ground water in the vicinity of the former underground storage tank (UST) has been impacted by petroleum hydrocarbons, and to perform three quarters of ground water sampling to monitor contaminants found in the ground water. Environmental Solutions, Inc. prepared a Soil and Ground Water Investigation Report, detailing activities and findings at the site, dated September 27, 1994. Please see that report for a complete description of the site history, and for the soil and ground water contaminants observed at the site. This report presents the results of the October 1994 quarterly monitoring event performed by Environmental Solutions, Inc.

2.0 GROUND WATER SAMPLING PROCEDURES

1. The quarterly monitoring activities were performed on October 27, 1994. The traffic-rated well surface covers were unscrewed and removed, and the well casing water-resistant, expandable caps unlocked and removed. Ground water levels were measured with an electric sounder, in each of the 3 monitoring wells on site (Figure 2). After the water levels were measured and recorded, a minimum of three wet well casing volumes were purged from the monitoring wells prior to sampling. Temperature, conductivity and pH measurements of the purge water were recorded during purging operations. Prior to purging the monitoring wells, all sampling equipment was decontaminated with analconox wash and deionized water rinse, before and after each use. Purge, and decontamination rinsate water were placed in labeled Department of Transportation's (DOT) approved 55-gallon drums, pending laboratory analyses for evaluation of disposal alternatives. Prior to sampling, a minimum of 90 percent of the original water volume was allowed to recover in each well prior to sampling.
2. Ground water samples were collected with disposable plastic bailers and released into clean laboratory-supplied, sample bottles. Each sample bottle was labelled with the well number, samplers name, date, and time collected. A new bailer with unused twine was utilized for each well. After collection, the filled bottles were capped and placed in a cooler packed with blue ice, and transported under Chain-of-Custody documentation to Chromalab Inc., located in Pleasanton, California, for analysis. Chromalab is a California State certified laboratory.

3.0 ANALYTICAL PROGRAM

1. Ground water samples collected from monitoring wells MW-1, MW-2 and MW-3 were analyzed by Chromalab Inc., located in Pleasanton, California. The analytical program included the following analyses:
 - EPA Method 6010, Heavy Metal Scan
 - EPA Method 8015 Modified for Total Petroleum Hydrocarbons as Gasoline
 - EPA Method 5520 Oil and Grease
 - EPA Method 8015 Modified for Total Petroleum Hydrocarbons as Diesel
 - EPA 8240 Volatile Organic Compounds

2. The laboratory, prior to analyzing the ground water samples for metals, filtered and preserved the samples.

4.0 RESULTS

1. Table 1 presents the results of the depth to water measurements and ground water elevations. Table 2 presents the pH, temperature, and conductivity measurements collected during purge activities.
2. On the basis of depth to water measurements collected on October 27, 1994, it appears that the ground water flows toward the east at a gradient of 0.0029 vertical feet per horizontal foot. This gradient is flatter and trending more eastward than the gradient calculated from depth to water measurements collected in July 1994.
3. The ground water samples were analyzed by Chromalab Inc. of Pleasanton, California. Analytical results are presented in Table 3, and the results are summarized below. Laboratory results and chain-of-custody documentation are attached in Appendix A.
4. TPH-gas was detected in monitoring wells MW-1 and MW-3 at concentrations of 0.07 milligrams per liter (mg/l) and 0.45 mg/l, respectively. These concentrations are comparable to those detected during the monitoring well installation sampling performed in July 1994. TPH-diesel, and oil and grease, were not detected at concentrations at or above the laboratories reported detection limits.
5. In each of the monitoring wells, results of the metals analysis show the presence of several elements at concentrations below their respective Maximum Contaminant Levels (MCLs)¹. Lead was detected for the first time in Monitoring Well MW-2 at a concentration of 0.01 mg/l.
6. Results of the volatile organic analyses show detectable concentrations of benzene (37 ug/l) and 1,2-Dichloroethane [1,2-DCA (37 ug/l)] in ground water samples collected from Monitoring Well MW-1. No other constituents were detected at concentrations at or above the laboratories reported detection limits.

¹ State of California Department of Health Services Summary of California Drinking Water Standards, November 1994.

5.0 DISCUSSION

1. The ground water flow direction and gradient at the site may be influenced by several factors. Two of the monitoring wells are composed of 2-inch PVC, while the third is composed of 4-inch PVC. All three monitoring wells have different total depths, which causes the screened intervals to vary between the wells. A backfilled excavation is present between the three wells in the location of the former underground storage tank, which may influence the ground water pattern. Other factors, including seasonal fluctuations in water levels, local variation in soil composition, and the presence of braided stream channel sediments known to exist in the west Oakland area, may be affecting the ground water flow patterns.
2. Thallium, a heavy metal, was not detected this sampling event, but a review of the previous data shows that the concentrations detected in July of 1994, in ground water samples from monitoring wells MW-1, and MW-2, now exceed the revised MCL of 0.002 mg/l. This compound will continue to be monitored during the next quarterly monitoring event.
3. Lead was detected for the first time in ground water samples from monitoring well MW-2, at a concentration just below the federal action level of 0.015 mg/l. No California state MCL is listed for lead as the federal action level supersedes state guidelines.
4. Benzene was detected for the first time in ground water samples collected from Monitoring Well MW-1. The concentrations of benzene and 1,2-DCA in ground water samples from this monitoring well exceed their respective MCLs of 0.001 mg/l and 0.0005 mg/l.

6.0 SCHEDULE

1. Environmental Solutions, Inc. will perform quarterly monitoring and sampling of the ground water at the site for the next two consecutive quarters until March 1995. The next sampling event is scheduled to take place in January 1995.

TABLE 1: WATER LEVEL DATA

Caltrans - 505 Cedar Street
 Environmental Solutions, Inc. Project Number 94-911

Well Identification	Top of Casing Elevation*	Measuring Date	Depth to Water #	Water Level Elevation*
MW-1	9.25	7/22/94	8.83	0.42
		10/27/94	8.315	0.935
MW-2	9.84	7/22/94	9.24	0.60
		10/27/94	8.82	1.02
MW-3	9.41	7/22/94	8.94	0.47
		10/27/94	8.41	1.00

* = Measurements in feet above USGS Mean Sea Level

= Depths measured in feet from top of casing

TABLE 2: TEMPERATURE, pH, AND CONDUCTIVITY MEASUREMENTS

Caltrans - 505 Cedar Street

Environmental Solutions, Inc. Project Number 94-911

Well Identification	Measuring Date	Temperature*	pH	Conductivity+
MW-1	7/27/94	67.0	NA	1158
	10/27/94	70.6	7.0	1103
MW-2	7/27/94	65.4	NA	1040
	10/27/94	67.8	7.1	916
MW-3	7/27/94	66.6	NA	1756
	10/27/94	68.4	6.8	1374

* Temperature in degrees fahrenheit

+ = Conductivity in umhos

NA = not available

Table 3: Analytical Results, 505 Cedar Street, Oakland, California

Monitoring Well	Date	Hydrocarbons				6010 Metals									
		Detection Limit	8015m-Diesel	5520-Oil and Grease	8015m-Gasoline	Detection Limit	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium (total)	Cobalt	Copper	
MW-1	7/27/94	mg/l	ND(0.05)	ND(1.0)	0.12	mg/l	ND(0.02)	ND(0.005)	0.069	ND(0.001)	ND(0.001)	0.011	ND(0.01)	ND(0.005)	
	10/27/94	mg/l	ND(0.05)	ND(5.0)	0.45	mg/l	ND(0.02)	0.011	0.076	ND(0.001)	0.001	ND(0.01)	ND(0.01)	ND(0.005)	
MW-2	7/27/94	mg/l	ND(0.05)	ND(1.0)	ND(0.05)	mg/l	ND(0.02)	ND(0.005)	0.011	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.005)	
	10/27/94	mg/l	ND(0.05)	ND(5.0)	ND(0.05)	mg/l	ND(0.02)	0.005	0.12	ND(0.001)	0.003	0.02	ND(0.01)	0.02	
MW-3	7/27/94	mg/l	ND(0.05) ^a	ND(1.0)	0.13	mg/l	ND(0.02)	ND(0.005)	0.21	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.005)	
	10/27/94	mg/l	ND(0.05)	ND(5.0)	0.07	mg/l	ND(0.02)	0.009	0.15	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.005)	

a = Unknown hydrocarbon identified in gasoline/kerosene range, quantified as 0.062 mg/l
 ND (0.05) Not Detected at or above reporting limit, reporting limit in parentheses.

Table 3: Analytical Results, 505 Cedar Street, Oakland, California

Monitoring Well	Date	Lead	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury
MW-1	7/27/94	ND(0.01)	0.0059	ND(0.02)	ND(0.01)	ND(0.005)	0.04	ND(0.01)	0.38	ND(0.001)
	10/27/94	ND(0.01)	ND(0.005)	ND(0.02)	ND(0.01)	ND(0.005)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.001)
MW-2	7/27/94	ND(0.01)	0.0066	ND(0.02)	ND(0.01)	ND(0.005)	0.017	ND(0.01)	0.012	ND(0.001)
	10/27/94	0.01	ND(0.005)	0.02	ND(0.01)	ND(0.005)	ND(0.01)	0.01	0.03	ND(0.001)
MW-3	7/27/94	ND(0.01)	ND(0.005)	ND(0.02)	ND(0.01)	ND(0.005)	ND(0.01)	ND(0.01)	0.17	ND(0.001)
	10/27/94	ND(0.01)	ND(0.005)	ND(0.02)	ND(0.01)	ND(0.005)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.001)

ND (0.05) Not Detected at or above reporting limit, reporting limit in parentheses.

Table 3: Analytical Results, 505 Cedar Street, Oakland, California

Monitoring Well	Date	8240 VOC's	Detection Limit	VOCs													
				Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	2-Butanone (MEK)	Carbon Tetrachloride	Chlorobenzene	Chloroethane	2-Chloroethyl Vinyl Ether	Chloroform	Chloromethane	Dibromochloromethane	1,1-Dichloroethane
MW-1	7/27/94	ug/L	ND(5.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	3.4	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	43
	10/27/94	ug/L	ND(5.0)	37	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	37
MW-2	7/27/94	ug/L	ND(5.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
	10/27/94	ug/L	ND(5.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
MW-3	7/27/94	ug/L	ND(5.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
	10/27/94	ug/L	ND(5.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)

ND (0.05) Not Detected at or above reporting limit, reporting limit in parentheses.

Table 3: Analytical Results, 505 Cedar Street, Oakland, California

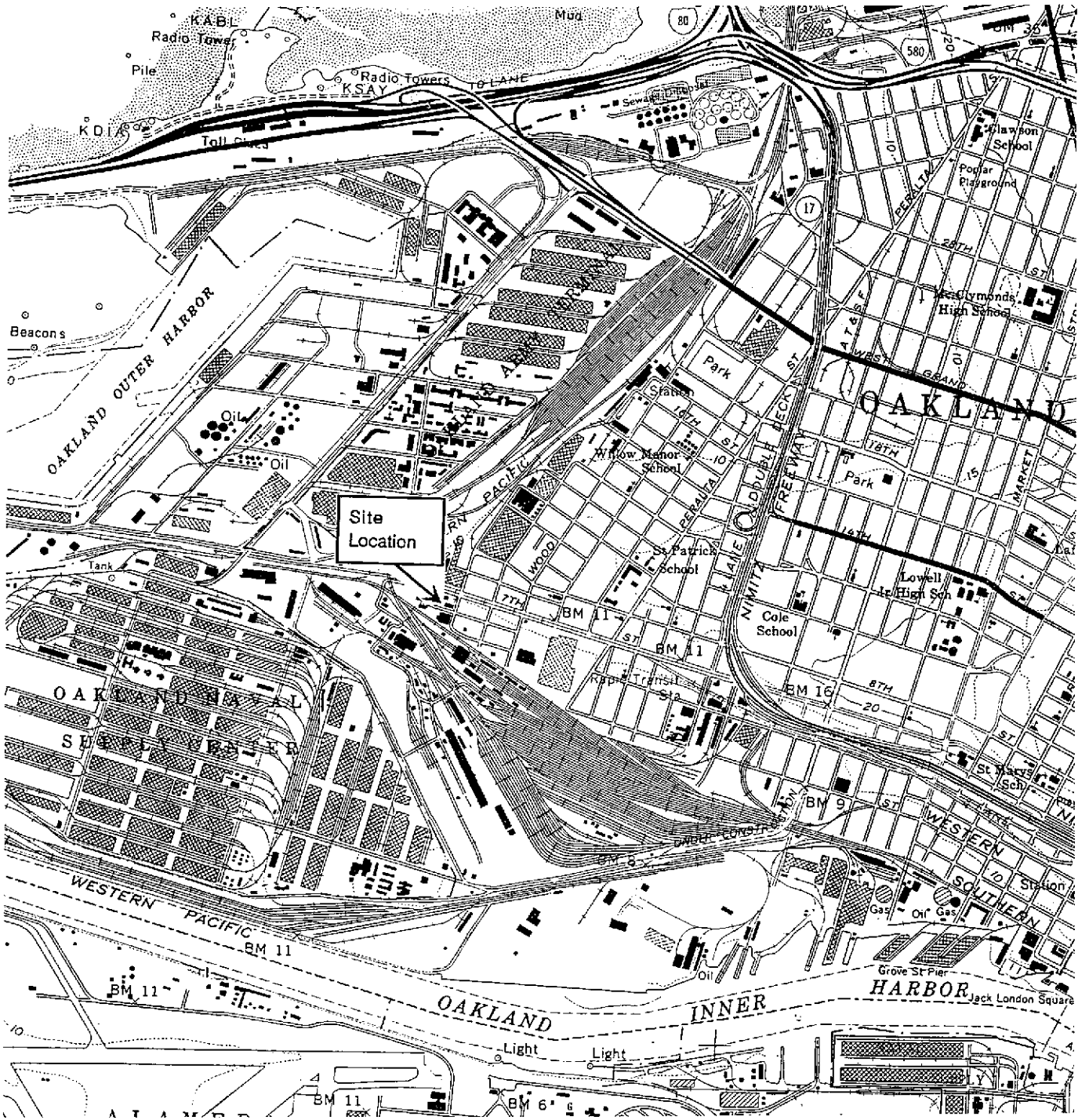
Monitoring Well	Date	Σ240 VOC's	Detection Limit	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Ethylbenzene	2-Hexanone	Methylene Chloride	Methyl Isobutyl Ketone	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethene	Toluene	1,1,1-Trichloroethane	
				ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-1	7/27/94		ug/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(5.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
	10/27/94		ug/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(5.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
MW-2	7/27/94		ug/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(5.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
	10/27/94		ug/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(5.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
MW-3	7/27/94		ug/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(5.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
	10/27/94		ug/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(5.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)

ND (0.05) Not Detected at or above reporting limit, reporting limit in parentheses.

Table 3: Analytical Results, 505 Cedar Street, Oakland, California

Monitoring Well	Date	8240 VOC's	Detection Limit	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Total Xylenes
MW-1	7/27/94	ug/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
	10/27/94	ug/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
MW-2	7/27/94	ug/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
	10/27/94	ug/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
MW-3	7/27/94	ug/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
	10/27/94	ug/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)

ND (0.05) Not Detected at or above reporting limit, reporting limit in parentheses.



0 1/2



Statute Miles

FIGURE 1

SITE VICINITY MAP
 505 Cedar Street
 Oakland, California

ENVIRONMENTAL SOLUTIONS, INC.

LEGEND

USGS 1: 24,000 SCALE
 OAKLAND WEST
 QUADRANGLE TOPOGRAPHIC MAP



Seventh Street

Propeller Factory

Approximate area of overexcavation (RES, 11/93)

Cedar Street

MW-2

B-1

Former tank pit

MW-1

MW-3

Vacant Lot

Post Office

Fifth Street

LEGEND



Site boundary



Monitoring well location



Boring location



Approximate Scale
1 inch = 20 feet

FIGURE 2

SITE LOCATION MAP

505 Cedar Street
Oakland, California

ENVIRONMENTAL SOLUTIONS, INC.

SA-911 rev. 1/95

Seventh Street

Propeller Factory

Cedar Street

Post Office

Vacant Lot

Fifth Street

LEGEND



Site boundary

1.00 Inferred groundwater contour

Inferred groundwater contour



MW-3

Monitoring well location



B-1

Boring location

1.02 Groundwater elevation measured 10/27/94



Approximate Scale
1 inch = 20 feet

FIGURE 3

GROUND WATER CONTOUR MAP

505 Cedar Street
Oakland, California

ENVIRONMENTAL SOLUTIONS, INC.

Groundwater gradient 0.0029

MW-2
1.02

B-1

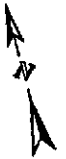
Former tank pit

MW-1
0.935

MW-3
1.00

1.00 0.95

0.95



Seventh Street

Propeller Factory

TPH-gas = 0.45 mg/l
Benzene = 37 ug/l
1,2-Dichloroethane = 37 ug/l

Cedar Street

MW-2

B-1

Former tank pit

MW-1

Vacant Lot

MW-3

TPH-gas = 0.07 mg/l

Post Office

Fifth Street



Approximate Scale
1 inch = 20 feet

LEGEND



Site boundary



Boring location



Monitoring well location

Based on analysis of ground water samples collected 10/27/94

FIGURE 4

GROUND WATER ANALYTICAL DATA

505 Cedar Street
Oakland, California

ENVIRONMENTAL SOLUTIONS, INC.

APPENDIX A

CHAIN OF CUSTODY DOCUMENTATION
AND
ANALYTICAL DATA SHEETS

94911qm1.013

CHROMALAB, INC.

Environmental Services (SDB)

November 9, 1994

Submission #: 9410337

ENV. SOLUTIONS - PETALUMA

Atten: Jed Douglas

Project: CALTRANS/CAL EAST

Project#: 94-911

Received: October 27, 1994

re: One sample for Volatile Organic Compounds analysis.

RECEIVED

DEC 19 1994

Sample ID: W-1

Spl#: 68081

Matrix: WATER

Sampled: October 27, 1994

Run#: 4508

Analyzed: November 2, 1994

Method: EPA 8240/8260

<u>ANALYTE</u>	<u>RESULT</u> (ug/L)	<u>REPORTING</u> <u>LIMIT</u> (ug/L)	<u>BLANK</u> <u>RESULT</u> (ug/L)	<u>BLANK SPIKE</u> <u>RESULT</u> (%)
ACETONE	N.D.	5.0	N.D.	--
BENZENE	37	2.0	N.D.	101
BROMODICHLOROMETHANE	N.D.	2.0	N.D.	--
BROMOFORM	N.D.	2.0	N.D.	--
BROMOMETHANE	N.D.	2.0	N.D.	--
METHYL ETHYL KETONE	N.D.	2.0	N.D.	--
CARBON TETRACHLORIDE	N.D.	2.0	N.D.	--
CHLOROBENZENE	N.D.	2.0	N.D.	97
CHLOROETHANE	N.D.	2.0	N.D.	--
2-CHLOROETHYL VINYL ETHER	N.D.	2.0	N.D.	--
CHLOROFORM	N.D.	2.0	N.D.	--
CHLOROMETHANE	N.D.	2.0	N.D.	--
DIBROMOCHLOROMETHANE	N.D.	2.0	N.D.	--
1,1-DICHLOROETHANE	N.D.	2.0	N.D.	--
1,2-DICHLOROETHANE	37	2.0	N.D.	--
1,1-DICHLOROETHENE	N.D.	2.0	N.D.	93
CIS-1,2-DICHLOROETHENE	N.D.	2.0	N.D.	--
TRANS-1,2-DICHLOROETHENE	N.D.	2.0	N.D.	--
1,2-DICHLOROPROPANE	N.D.	2.0	N.D.	--
CIS-1,3-DICHLOROPROPENE	N.D.	2.0	N.D.	--
TRANS-1,3-DICHLOROPROPENE	N.D.	2.0	N.D.	--
ETHYLBENZENE	N.D.	2.0	N.D.	--
2-HEXANONE	N.D.	2.0	N.D.	--
METHYLENE CHLORIDE	N.D.	5.0	N.D.	--
METHYL ISOBUTYL KETONE	N.D.	2.0	N.D.	--
STYRENE	N.D.	2.0	N.D.	--
1,1,2,2-TETRACHLOROETHANE	N.D.	2.0	N.D.	--
TETRACHLOROETHENE	N.D.	2.0	N.D.	--
TOLUENE	N.D.	2.0	N.D.	89
1,1,1-TRICHLOROETHANE	N.D.	2.0	N.D.	--
1,1,2-TRICHLOROETHANE	N.D.	2.0	N.D.	--
TRICHLOROETHENE	N.D.	2.0	N.D.	89
TRICHLOROFLUOROMETHANE	N.D.	2.0	N.D.	--
VINYL ACETATE	N.D.	2.0	N.D.	--
VINYL CHLORIDE	N.D.	2.0	N.D.	--
TOTAL XYLENES	N.D.	2.0	N.D.	--

Oleg Nemtsov

Oleg Nemtsov
Chemist

Ali Kharrazi

Ali Kharrazi
Organic Manager

CHROMALAB, INC.

Environmental Services (SDB)

November 9, 1994

Submission #: 9410337

ENV. SOLUTIONS - PETALUMA

Atten: Jed Douglas

Project: CALTRANS/CAL EAST

Project#: 94-911

Received: October 27, 1994

re: One sample for Volatile Organic Compounds analysis.

Sample ID: W-2

Spl#: 68082

Matrix: WATER

Sampled: October 27, 1994

Run#: 4508

Analyzed: November 2, 1994

Method: EPA 8240/8260

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
ACETONE	N.D.	5.0	N.D.	--
BENZENE	N.D.	2.0	N.D.	101
BROMODICHLOROMETHANE	N.D.	2.0	N.D.	--
BROMOFORM	N.D.	2.0	N.D.	--
BROMOMETHANE	N.D.	2.0	N.D.	--
METHYL ETHYL KETONE	N.D.	2.0	N.D.	--
CARBON TETRACHLORIDE	N.D.	2.0	N.D.	--
CHLOROBENZENE	N.D.	2.0	N.D.	97
CHLOROETHANE	N.D.	2.0	N.D.	--
2-CHLOROETHYLVINYL ETHER	N.D.	2.0	N.D.	--
CHLOROFORM	N.D.	2.0	N.D.	--
CHLOROMETHANE	N.D.	2.0	N.D.	--
DIBROMOCHLOROMETHANE	N.D.	2.0	N.D.	--
1,1-DICHLOROETHANE	N.D.	2.0	N.D.	--
1,2-DICHLOROETHANE	N.D.	2.0	N.D.	--
1,1-DICHLOROETHENE	N.D.	2.0	N.D.	93
CIS-1,2-DICHLOROETHENE	N.D.	2.0	N.D.	--
TRANS-1,2-DICHLOROETHENE	N.D.	2.0	N.D.	--
1,2-DICHLOROPROPANE	N.D.	2.0	N.D.	--
CIS-1,3-DICHLOROPROPENE	N.D.	2.0	N.D.	--
TRANS-1,3-DICHLOROPROPENE	N.D.	2.0	N.D.	--
ETHYLBENZENE	N.D.	2.0	N.D.	--
2-HEXANONE	N.D.	2.0	N.D.	--
METHYLENE CHLORIDE	N.D.	5.0	N.D.	--
METHYL ISOBUTYL KETONE	N.D.	2.0	N.D.	--
STYRENE	N.D.	2.0	N.D.	--
1,1,2,2-TETRACHLOROETHANE	N.D.	2.0	N.D.	--
TETRACHLOROETHENE	N.D.	2.0	N.D.	--
TOLUENE	N.D.	2.0	N.D.	89
1,1,1-TRICHLOROETHANE	N.D.	2.0	N.D.	--
1,1,2-TRICHLOROETHANE	N.D.	2.0	N.D.	--
TRICHLOROETHENE	N.D.	2.0	N.D.	89
TRICHLOROFLUOROMETHANE	N.D.	2.0	N.D.	--
VINYL ACETATE	N.D.	2.0	N.D.	--
VINYL CHLORIDE	N.D.	2.0	N.D.	--
TOTAL XYLENES	N.D.	2.0	N.D.	--

Oleg Nemtsov

Oleg Nemtsov
Chemist

Ali Kharrazi

Ali Kharrazi
Organic Manager

CHROMALAB, INC.

Environmental Services (SDB)

November 9, 1994

Submission #: 9410337

ENV. SOLUTIONS - PETALUMA

Atten: Jed Douglas

Project: CALTRANS/CAL EAST

Project#: 94-911

Received: October 27, 1994

re: One sample for Volatile Organic Compounds analysis.

Sample ID: W-3

Spl#: 68083

Matrix: WATER

Sampled: October 27, 1994

Run#: 4508

Analyzed: November 2, 1994

Method: EPA 8240/8260

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
ACETONE	N.D.	5.0	N.D.	--
BENZENE	N.D.	2.0	N.D.	101
BROMODICHLOROMETHANE	N.D.	2.0	N.D.	--
BROMOFORM	N.D.	2.0	N.D.	--
BROMOMETHANE	N.D.	2.0	N.D.	--
METHYL ETHYL KETONE	N.D.	2.0	N.D.	--
CARBON TETRACHLORIDE	N.D.	2.0	N.D.	--
CHLOROBENZENE	N.D.	2.0	N.D.	97
CHLOROETHANE	N.D.	2.0	N.D.	--
2-CHLOROETHYL VINYL ETHER	N.D.	2.0	N.D.	--
CHLOROFORM	N.D.	2.0	N.D.	--
CHLOROMETHANE	N.D.	2.0	N.D.	--
DIBROMOCHLOROMETHANE	N.D.	2.0	N.D.	--
1,1-DICHLOROETHANE	N.D.	2.0	N.D.	--
1,2-DICHLOROETHANE	N.D.	2.0	N.D.	--
1,1-DICHLOROETHENE	N.D.	2.0	N.D.	93
CIS-1,2-DICHLOROETHENE	N.D.	2.0	N.D.	--
TRANS-1,2-DICHLOROETHENE	N.D.	2.0	N.D.	--
1,2-DICHLOROPROPANE	N.D.	2.0	N.D.	--
CIS-1,3-DICHLOROPROPENE	N.D.	2.0	N.D.	--
TRANS-1,3-DICHLOROPROPENE	N.D.	2.0	N.D.	--
ETHYLBENZENE	N.D.	2.0	N.D.	--
2-HEXANONE	N.D.	2.0	N.D.	--
METHYLENE CHLORIDE	N.D.	5.0	N.D.	--
METHYL ISOBUTYL KETONE	N.D.	2.0	N.D.	--
STYRENE	N.D.	2.0	N.D.	--
1,1,2,2-TETRACHLOROETHANE	N.D.	2.0	N.D.	--
TETRACHLOROETHENE	N.D.	2.0	N.D.	--
TOLUENE	N.D.	2.0	N.D.	89
1,1,1-TRICHLOROETHANE	N.D.	2.0	N.D.	--
1,1,2-TRICHLOROETHANE	N.D.	2.0	N.D.	--
TRICHLOROETHENE	N.D.	2.0	N.D.	89
TRICHLOROFLUOROMETHANE	N.D.	2.0	N.D.	--
VINYL ACETATE	N.D.	2.0	N.D.	--
VINYL CHLORIDE	N.D.	2.0	N.D.	--
TOTAL XYLENES	N.D.	2.0	N.D.	--

Oleg Nemtsov

Oleg Nemtsov
Chemist

Ali Kharrazi

Ali Kharrazi
Organic Manager

CHROMALAB, INC.

Environmental Services (SDB)

November 10, 1994

Submission #: 9410337

ENV. SOLUTIONS - PETALUMA

Atten: Jed Douglas

Project: CALTRANS/CAL EAST
Received: October 27, 1994

Project#: 94-911

re: 3 samples for Gasoline analysis.

Matrix: WATER


Sampled: October 27, 1994


Run#: 4512

Analyzed: November 9, 1994

Method: EPA 5030/8015M

Spl #	CLIENT	SMPL ID	GASOLINE (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE RESULT (%)
68081	W-1		0.45	0.05	N.D.	99
68082	W-2		N.D.	0.05	N.D.	99
68083	W-3		0.07	0.05	N.D.	99


Jack Kelly
Chemist


Ali Kharrazi
Organic Manager

CHROMALAB, INC.

Environmental Services (SDB)

November 9, 1994

Submission #: 9410337

ENV. SOLUTIONS - PETALUMA

Atten: Jed Douglas

Project: CALTRANS/CAL EAST

Project#: 94-911

Received: October 27, 1994

re: Three samples for Oil & Grease analysis

Matrix: WATER

Sampled: October 27, 1994


Analyzed: November 8, 1994

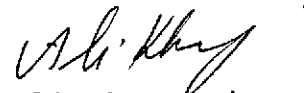
Method: STD Method 5520 B & F

<u>Sample #</u>	<u>Client Sample ID</u>	<u>Oil & Grease (mg/L)</u>
68081	W-1	N.D.
68082	W-2	N.D.
68083	W-3	N.D.
Blank		N.D.
Reporting Limit		5.0*

*Detection limit of 5.0 due to the limited sample.

ChromaLab, Inc.


Carolyn M. House
Analyst


Ali Kharrazi
Organic Manager

cc

CHROMALAB, INC.

Environmental Services (SDB)

November 10, 1994

Submission #: 9410337

ENV. SOLUTIONS - PETALUMA

Atten: Jed Douglas

Project: CALTRANS/CAL EAST
Received: October 27, 1994

Project#: 94-911

re: One sample for CAM 17 Metals analysis.

Sample ID: W-1

Spl#: 68081

Matrix: WATER

Extracted: November 7, 1994


Sampled: October 27, 1994


Run#: 4483

Analyzed: November 8, 1994

Method: EPA 3010/6010/7470

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE RESULT (%)
ANTIMONY	N.D.	0.02	N.D.	104
ARSENIC	0.011	0.005	N.D.	100
BARIUM	0.076	0.005	N.D.	104
BERYLLIUM	N.D.	0.001	N.D.	106
CADMIUM	0.001	0.001	N.D.	106
CHROMIUM	N.D.	0.01	N.D.	104
COBALT	N.D.	0.01	N.D.	102
COPPER	N.D.	0.005	N.D.	96
LEAD	N.D.	0.01	N.D.	104
MOLYBDENUM	N.D.	0.005	N.D.	112
NICKEL	N.D.	0.02	N.D.	106
SELENIUM	N.D.	0.01	N.D.	98
SILVER	N.D.	0.005	N.D.	94
THALLIUM	N.D.	0.01	N.D.	94
VANADIUM	N.D.	0.01	N.D.	102
ZINC	N.D.	0.01	N.D.	112
MERCURY	N.D.	0.001	N.D.	92


Doina Danet
Chemist


John S. Babash
Inorganic Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

November 10, 1994

Submission #: 9410337

ENV. SOLUTIONS - PETALUMA

Atten: Jed Douglas

Project: CALTRANS/CAL EAST
Received: October 27, 1994

Project#: 94-911

re: One sample for CAM 17 Metals analysis.

Sample ID: W-2

Spl#: 68082

Matrix: WATER

Extracted: November 7, 1994


Sampled: October 27, 1994

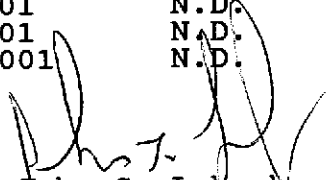
Run#: 4483

Analyzed: November 8, 1994

Method: EPA 3010/6010/7470

ANALYTE	RESULT	REPORTING	BLANK	BLANK SPIKE
	(mg/L)	LIMIT	RESULT	RESULT
	(mg/L)	(mg/L)	(mg/L)	(%)
ANTIMONY	N.D.	0.02	N.D.	104
ARSENIC	0.005	0.005	N.D.	100
BARIUM	0.12	0.005	N.D.	104
BERYLLIUM	N.D.	0.001	N.D.	106
CADMIUM	0.003	0.001	N.D.	106
CHROMIUM	0.02	0.01	N.D.	104
COBALT	N.D.	0.01	N.D.	102
COPPER	0.020	0.005	N.D.	96
LEAD	0.01	0.01	N.D.	104
MOLYBDENUM	N.D.	0.005	N.D.	112
NICKEL	0.02	0.02	N.D.	106
SELENIUM	N.D.	0.01	N.D.	98
SILVER	N.D.	0.005	N.D.	94
THALLIUM	N.D.	0.01	N.D.	94
VANADIUM	0.01	0.01	N.D.	102
ZINC	0.03	0.01	N.D.	112
MERCURY	N.D.	0.001	N.D.	92


Doina Danet
Chemist


John S. Labash
Inorganic Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

November 10, 1994

Submission #: 9410337

ENV. SOLUTIONS - PETALUMA

Atten: Jed Douglas

Project: CALTRANS/CAL EAST
Received: October 27, 1994

Project#: 94-911

re: One sample for CAM 17 Metals analysis.

Sample ID: W-3

Spl#: 68083

Matrix: WATER

Extracted: November 7, 1994

Sampled: October 27, 1994

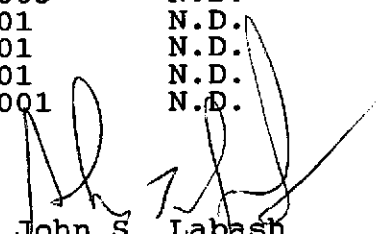
Run#: 4483

Analyzed: November 8, 1994

Method: EPA 3010/6010/7470

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE RESULT (%)
ANTIMONY	N.D.	0.02	N.D.	104
ARSENIC	0.009	0.005	N.D.	100
BARIUM	0.15	0.005	N.D.	104
BERYLLIUM	N.D.	0.001	N.D.	106
CADMIUM	N.D.	0.001	N.D.	106
CHROMIUM	N.D.	0.01	N.D.	104
COBALT	N.D.	0.01	N.D.	102
COPPER	N.D.	0.005	N.D.	96
LEAD	N.D.	0.01	N.D.	104
MOLYBDENUM	N.D.	0.005	N.D.	112
NICKEL	N.D.	0.02	N.D.	106
SELENIUM	N.D.	0.01	N.D.	98
SILVER	N.D.	0.005	N.D.	94
THALLIUM	N.D.	0.01	N.D.	94
VANADIUM	N.D.	0.01	N.D.	102
ZINC	N.D.	0.01	N.D.	112
MERCURY	N.D.	0.001	N.D.	92


Doina Danet
Chemist


John S. Labash
Inorganic Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

November 7, 1994

Submission #: 9410337

ENV. SOLUTIONS - PETALUMA

Atten: Jed Douglas

Project: CALTRANS/CAL EAST
Received: October 27, 1994

Project #: 94-911

re: Three samples for Diesel analysis

Matrix: WATER
Sampled: October 27, 1994
Method: EPA 3510/8015

Extracted: November 3, 1994
Analyzed: November 4, 1994

<u>Sample #</u>	<u>Client Sample ID</u>	<u>Diesel ($\mu\text{g/L}$)</u>
68081	W-1	N.D.
68082	W-2	N.D.
68083	W-3	N.D.
Blank		N.D.
Spike Recovery		100%
Dup Spike Recovery		112%
Reporting Limit		50

ChromaLab, Inc.

Sirirat Chullakorn

Sirirat Chullakorn
Analytical Chemist

Ali Kharrazi

Ali Kharrazi
Organic Manager

cc

CHAIN OF CUSTODY RECORD

Ship To: Chromalab
 Attn: _____

Page 1 of 1
 Project Name Caltrans - Cal East
 Project No. 94-911
 Site Location 505 Cedar St
 Date 10/27/94

Analysis
 6010
 TPH-Gas
 TPH-diesel
 5520
 8240

RECEIVED
 DEC 19 1994

Sample ID	Depth	Date	Time	Sample Type			Comp	Grab	Sample Containers				REMARKS				
				Water	Solid	Other			Vol.	No.	Type	Pres.					
W-1		10/27	1430	X				X	6			X	X	X	X	X	Filter + preserve
W-2		"	1445	X				X	6			X	X	X	X	X	prior to 6010
W-3		"	1500	X				X	6			X	X	X	X	X	analysis
																	Standard TAT

Total Number of Samples Shipped: 3 Sampler's Signature: [Signature]

Signature	Company	Date	Time
<u>[Signature]</u>	<u>ESI</u>	<u>10/27/94</u>	<u>1548</u>
<u>[Signature]</u>	<u>Chromalab</u>	<u>10-24-94</u>	<u>1550</u>

Special Instructions / Shipment / Handling / Storage Requirements:
Filter + preserve
prior to 6010
ESI
1201 N. McDonald Blvd
Petaluma, CA 94954
 Please send signed copy with results to the ATTENTION OF: Jed Douglas
 at the address to the right indicated by an above

- ENVIRONMENTAL SOLUTIONS, INC.
 21 Technology Drive
 Irvine, CA 92718
 (714) 727-9336 FAX (714) 727-7399
- ENVIRONMENTAL SOLUTIONS, INC.
 2815 Mitchell Drive, Suite 103
 Walnut Creek, CA 94598
 (510) 935-3294 FAX (510) 935-5412

Samples received
 call in 0001 and PM 10-27-94

DISTRIBUTION

**QUARTERLY MONITORING AND SAMPLING REPORT
505 CEDAR STREET
OAKLAND, CALIFORNIA**

Caltrans Contract Number 53U495
Task Order Number 04-192211-05

Environmental Solutions, Inc. Project No. 94-911

December 12, 1994

California Department of Transportation (CALTRANS) 5 Copies
Environmental Engineering Branch
111 Grand Avenue, 14th Floor
Oakland, California 94623

Attention: Mr. Chris Wilson

Environmental Solutions, Inc. 4 Copies
1201 North McDowell Boulevard
Petaluma, CA 94954